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EXAMINER

ZHEN, LI B

ART UNIT PAPER NUMBER

2194

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/742,761

Applicant(s)

RAJARAJAN ET AL.

Examiner

Li B. Zhen

Art Unit

2194

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5/6/05.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

1. Claims 1 – 51 are pending in the current application.

Response to Arguments

2. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-5, 7-10, 15-16, 22-26, 31, 35-39, 41, 43-49 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quatrani, "Visual Modeling with Rational Rose and UML" Addison-Wesley, 3rd Printing, April 1998 (hereinafter referred to as Quatrani, cited in previous office action) in view of U.S. Patent No. 5,838,973 to Carpenter-Smith et al. (hereinafter referred to as Carpenter-Smith).**
5. As to claim 1, Quatrani teaches the invention substantially as claimed including a complete set of visual modeling tools for development of robust, efficient solutions to real business needs in the client/server, distributed enterprise, and real-time system environments (e.g. see pg. 12, last paragraph and associated text) and the method of:

providing a plurality of notations, each notation comprising a visual representation of a model element (e.g., see notation at pg. 77-78, Figure 6-1 & 6-2);

providing a plurality of semantics, each semantic comprising a meaning in a modeling environment of a model element (e.g., see association at pg. 77-78, Figure 6-1 & 6-2); and

associating a selected notation with a selected semantic to provide a model element having a visual representation and a meaning in a modeling environment; (e.g., see association at pg. 77-78, Figure 6-1 & 6-2).

6. Although Quantrani teaches the invention substantially, Quantrani does not specifically teach separating each of a plurality of semantic from each of a plurality of notations.

However, Carpenter-Smith teaches a computerized modeling system for transforming object-oriented programming based system or process into a visual representation (col. 1, lines 47 – 67 and col. 4, line 63 – col. 5, line 21) including a plurality of notations (return interaction line 590, carrier cell 602, NewBehavior interaction line 588; col. 19, line 57 – col. 20, line 23), a plurality of semantics (class is defined by its collective responsibilities, including its attributes and behaviors. By describing the responsibilities of each class, the role that each class plays is defined within the system model; col. 11, lines 30 – 40), separating each of a plurality of semantic from each of a plurality of notations (examiner notes that the notations such as the various interaction lines and cells are separate from the semantics such as attributes and behaviors) and associating a notation with a semantic (classes are

Art Unit: 2194

presented in the interaction diagram window 570 can be modified in the interaction diagram window 570; col. 20, lines 10 – 23).

7. It would have been obvious to a person of ordinary skill in the art at the time of the invention to apply the teaching of separating each of a plurality of semantic from each of a plurality of notations as taught by Carpenter-Smith to the invention of Quatrani because this allows creation and representation of the system or process model in a three-dimensional space and visualizing models in a three-dimensional space provides users the opportunity to validate their models by analyzing the amount of emphasis that is placed on each object (col. 1, lines 29 – 33 of Carpenter-Smith).

8. As to claim 2, Quatrani teaches the selected notation and the selected semantic each comprise an object, and wherein associating the selected notation with the selected semantic comprises connecting the selected notation object to the selected semantic object via object interfaces (e.g., see relationships pg. 77: 1-9 & see creating an association relationship pg. 77:21-25 by using click and drag as interface).

9. As to claim 3, Quatrani teaches the objects are connected to a paradigm server (e.g. see pg. 12, last paragraph, server).

10. As to claim 4, Quatrani as modified teaches a notation data structure having a set of at least one interface for accessing a plurality of methods therein (e.g. see pg. 65-74 of Quatrani, Figure 5-3 browsing view has a drop-down feature as interface);

a semantic data structure (col. 11, lines 30 – 40 of Carpenter-Smith) separate from the notation data structure (col. 19, line 57 – col. 20, line 23 of Carpenter-Smith), the semantic data structure having a set of at least one interface for accessing a plurality of methods (e.g. see pg. 69 of Quatrani, Figure 5-4, method: 'course form', 'the Manager' and 'aCourse') therein, the semantic data structure being associated with the notation data structure to provide a model element (e.g. see pg. 65-74 of Quatrani, Figure 5-4, associated: 1. set course info; 2. - 4.).

11. As to claim 5, Quatrani teaches the notation data structure comprises a notation object and the semantic data structure comprises a semantic object (e.g., see association relationships pg. 77-78, Figure 6-1 & 6-2) and wherein a paradigm server associates the notation object with the semantic object to provide the model element (e.g. see pg. 12, last paragraph, server).

12. As to claim 7, Quatrani teaches one of the methods of the notation data structure provides information identifying a library of notations to which the notation data structure belongs (e.g., see DLLS pg. 153: 1-12, Figure 11-10).

13. As to claim 8, Quatrani teaches one of the methods of the notation data structure provides type information corresponding to the notation data structure (e.g., see stereotype pg. 46:8-18, Figure 4-4).

Art Unit: 2194

14. As to claim 9, Quatrani teaches one of the methods of the notation data structure provides subtype information corresponding to the notation data structure (e.g., see pg. 102, Figure 7-6, Course:name, description, or creditHours).

15. As to claim 10, Quatrani teaches one of the methods of the notation data structure provides a name of the notation data structure (e.g., see naming objects pg. 66, Figure 5-1).

16. As to claim 15, Quatrani teaches one of the methods of the notation data structure provides information indicative of whether the notation is capable of visually indicating attach-points at which arcs can connect (e.g., see line between methods pg. 77, Figure 6-1, pg. 78 6-2).

17. As to claim 16, Quatrani teaches one of the methods of the notation data structure provides information indicative of a minimum and maximum size of the notation (e.g., see multiplicity pg. 83-84, Figure 6-7, "0...4" where 0 is min, 4 is max).

18. As to claim 22, Quatrani teaches one of the methods of the notation data structure provides information identifying a library of semantics (e.g., see DLLS pg. 153: 1-12, Figure 1 1-10) to which the semantic data structure belongs (e.g., see pg. 86, Table 6-1, Class Relationships).

Art Unit: 2194

19. As to claim 23, Quatrani teaches one of the methods of the semantic data structure provides type information corresponding to the semantic data structure (e.g., see pg. 86, Table 6-1).

20. As to claim 24, Quatrani teaches one of the methods of the semantic data structure provides subtype information corresponding to the semantic data structure (e.g., see pg. 102, Figure 7-6, Course:name, description, or creditHours) and (e.g., see pg. 86, Table 6-1, Class Relationships).

21. As to claim 25, Quatrani teaches one of the methods of the semantic data structure provides a name of the semantic data structure (e.g., see naming relationships pg. 80-83, Figure 6-5, 'manages').

22. As to claim 26, Quatrani teaches the semantic data structure includes a set of at least one requirement related to notation data structures which can connect thereto (e.g., see association pg. 77-78, Figure 6-1 & 6-2), (e.g., see pg. 102, Figure 7-6, Course:name, description, or creditHours) and (e.g., see pg. 86, Table 6-1, Class Relationships).

23. As to claim 31, Quatrani teaches one requirement of the set requires that the notation data structure have a number of attach-points at which arcs can connect (e.g.,

Art Unit: 2194

see multiplicity pg. 87, Figure 6-9, item 'ProfessorcourseManager' has 2 connection points).

24. As to claim 35, Quatrani teaches the model element corresponds to a node, and wherein the node includes at least one method to determine the notation data structure and semantic data structure and corresponding thereto (e.g., see pg. 87, Figure 6-9, item 'Course').

25. As to claim 36, Quatrani teaches the model element corresponds to an arc, and wherein the arc includes at least one method to determine the notation data structure and semantic data structure and corresponding thereto (e.g., see pg. 87, Figure 6-9, line 'manages' & pg. 1 15, Figure 8-5).

26. As to claim 37, Quatrani as modified teaches a notation comprising a representation of a model element in at least one modeling environment, the notation including an interface configured to provide access to methods therein (e.g., see association at pg. 77-78 of Quatrani, Figure 6-1 & 6-2);

a semantic (col. 11, lines 30 – 40 of Carpenter-Smith) separate from the notation (col. 19, line 57 – col. 20, line 23 of Carpenter-Smith), the semantic comprising a meaning of a model element in at least one modeling environment, the semantic including an interface configured to provide access to methods therein (e.g., again see association at pg. 77-78 of Quatrani, Figure 6-1 & 6-2); and

a paradigm server, (e.g. see pg. 12 of Quatrani, last paragraph, server) the server connected to a modeling environment and configured to access the methods of the notation and the methods of the semantic via their respective interfaces, (e.g., see relationships pg. 77: 1-9 of Quatrani & see creating an association relationship pg. 77:21-25 of Quatrani. by using “click” and “drag” as interface) and further configured to enable a determination as to whether the paradigm server, notation and semantic are each compatible, and if they are compatible, to associate the notation with the semantic to provide a model element in the modeling environment.

27. As to claim 38, Quatrani teaches the notation and the semantic each comprise an object (e.g., see SYSTEM pg. 77: 1-9 & see creating an association relationship pg. 77:21-25 by using “click” and “drag” as interface).

28. As to claim 39, Quatrani as modified teaches selecting a selected notation from a plurality of notations, each notation comprising a visual representation of a model element (e.g., see association at pg. 77-78 of Quatrani, Figure 6-1 & 6-2);

selecting a selected semantic from plurality of semantics (col. 11, lines 30 – 40 of Carpenter-Smith), each semantic separate from each notation (col. 19, line 57 – col. 20, line 23 of Carpenter-Smith) and comprising a meaning in a modeling environment of a model element” (e.g., see association at pg. 77-78 of Quatrani, Figure 6-1 & 6-2); and

validating whether the selected notation can be associated with the selected semantic (e.g., see pg. 95:26-32 of Quatrani where states "...a course might have to determine...before it adds").

29. As to claim 41, Quatrani teaches associating the selected notation with the selected semantic to provide a model element (e.g., see association at pg. 77-78, Figure 6-1 & 6-2).

30. As to claim 43, Quatrani teaches connecting the selected notation object to the selected semantic object via object interfaces (e.g., see creating an association relationship pg. 77:21-25. by using "click" and "drag" as interface).

31. As to claim 44, Quatrani teaches having computer-executable instructions (e.g., see pg. 175-176, in order to test after coding, computer-executable instructions are inherent available).

32. As to claim 45, this is a product claim that corresponds to method claim 1, see the rejection to claim 1 above, which also meets this product claim.

33. As to claims 46-47, these are rejected for the same reasons as claims 2 – 3 above.

Art Unit: 2194

34. As to claim 48, this is a product claim that corresponds to method claim 4, see the rejection to claim 4 above, which also meets this product claim.

35. As to claims 49 and 51, these are rejected for the same reasons as claims 5 and 26 above.

36. Claims 6, 40 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quatrani and Carpenter-Smith further in view of U.S. Patent No. 6,542,595 to Hemzal (cited in previous office action).

37. As to claim 6, Quatrani as modified doesn't explicitly disclose a server validating the semantic object.

However, Hemzal teaches a sever that validates a semantic object (e.g., see col. 10, lines 1 – 25).

38. It would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the teaching of Hemzal into the system of Quatrani as modified so that server validates that the semantic object. The modification would have been obvious because one of ordinary skill in the art would have been motivated so that a validation module can validate configuration data which can be used as operating parameters to a generating module, server, control module and storage.

As to claims 40 and 50, these are rejected for the same reasons as claim 6 above.

39. **Claims 11 – 14, 20, 21, 27 – 30, 33 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quatrani and Carpenter-Smith further in view of U.S. Patent No. 5,958,012 to Battat et al. (hereinafter referred to as Battat, cited in previous office action).**

40. As to claim 11, Quatrani as modified doesn't explicitly disclose the notation data structure is capable of being resized.

However, Battat teaches one of the methods of the notation data structure provides information indicative of whether the notation data structure is capable of being resized" (e.g., see module changes in position in col. 9:18-37).

41. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Battat into the system of Quatrani as modified, to resize the notation data structure because one of ordinary skill in the art would have been motivated to have all the displayed objects fitted in the window.

42. As to claim 12, Quatrani as modified doesn't explicitly disclose the notation data structure is visually indicating selected and unselected states.

However, Battat teaches one of the methods of the notation data structure provides information indicative of whether the notation is capable of visually indicating selected and unselected states (e.g., see col. 12: 19-67 to 13:1-7 and FIG. 10G, item 'Mode' has 3 to be selected ('Camera Fly', 'Move Object' and 'Edit Object')).

Art Unit: 2194

43. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Battat into the system of Quatrani as modified, to visually indicate selected and unselected states because one of ordinary skill in the art would have been motivated to allow the user to select each of the various models used in the adaptive display.

44. As to claim 13, Quatrani as modified does not explicitly disclose the notation is capable of being in a visible or a hidden state.

However, Battat teaches one of the methods of the notation data structure provides information indicative of whether the notation is capable of being in a visible or a hidden state (e.g., see col. 8:60-67 to 9: 1-17 and FIG. 3a, item 323).

45. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Battat into the system of Quatrani as modified, to be capable of being in a visible or a hidden state because one of ordinary skill in the art would have been motivated to determine whether a preset threshold for visualization has been exceeded with either the status indicator being hidden at module 324 or the appropriate change of status signal being sent.

46. As to claim 14, Quatrani as modified doesn't explicitly disclose the notation is capable of visually indicating hover-related states.

However, Battat teaches one of the methods of the notation data structure provides information indicative of whether the notation is capable of visually indicating hover-related states (e.g., see col. 14:25-36 and FIG. 11).

47. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Battat into the system of Quatrani as modified, to be capable of visually indicating hover-related states because one of ordinary skill in the art would have been motivated to when traveling over the map, status indicators show the aggregate status for cities and buildings, in the form of globes that hover over the objects.

48. As to claim 20, Quatrani as modified doesn't explicitly disclose providing information indicative of the notation is capable of doing animations.

However, Battat teaches one of the methods of the notation data structure provides information indicative of whether the notation is capable of doing animations (e.g., see col. 1:45-63).

49. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Battat into the system of Quatrani as modified, to provide information indicative of the notation is capable of doing animations because one of ordinary skill in the art would have been motivated so that website designers pay close attention to how much graphics, sound and animation could be included on their website pages.

Art Unit: 2194

50. As to claim 21, Quatrani as modified doesn't explicitly disclose providing information indicative of a number of states that the notation can visually indicate.

However, Battat teaches one of the methods of the notation data structure provides information indicative of a number of states that the notation can visually indicate (e.g., col. 12:19-67 to 13:1-7 and FIG. 10G, item 'Mode' has 3 to be selected ('Camera Fly', 'Move Object' and 'Edit Object')).

51. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Battat into the system of Quatrani as modified, to provide information indicative of a number of states that the notation can visually indicate because one of ordinary skill in the art would have been motivated to allow the user to select each of the various models used in the adaptive display.

52. As to claims 27 – 30, 33 and 34, these are rejected for the similar reasons as claims 11 – 14, 20 and 21 above.

53. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Quatrani and Carpenter-Smith further in view of U.S. Patent No. 6,041,143 to Chui et al. (hereinafter referred to as Chui, cited in the previous office action).

54. As to claim 17, Quatrani as modified doesn't explicitly disclose the notation is capable of zooming operations.

However, Chui teaches one of the methods of the notation data structure provides information indicative of whether the notation is capable of zooming operations (e.g., see col. 2:14-30).

55. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Chui into the system of Quatrani as modified, to be capable of capable of zooming operations because one of ordinary skill in the art would have been motivated so that the storage requirements for image files are reduced by storing only thumbnail data and the full image data in an image file, and producing image data structures for other resolution levels on the fly.

56. Claims 18 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Quatrani and Carpenter-Smith further in view of U.S. Patent No. 6,353,448 to Scarborough et al. (hereinafter referred to as Scarborough, cited in the previous office action).

57. As to claims 18 and 32, Quatrani as modified doesn't explicitly disclose providing information indicative of supported color depths.

However, Scarborough teaches one of the methods of the notation data structure provides information indicative of supported color depths (e.g., see col. 9:66-67 to 10: 1-26).

58. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Scarborough into the system of

Art Unit: 2194

Quatrani as modified, to provide information indicative of supported color depths because one of ordinary skill in the art would have been motivated so that screen display of an end-user configuration screen for adjusting color depth and image display resolution to indicate the status of an object.

59. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Quatrani and Carpenter-Smith further in view of U.S. Patent No. 5,907,704 to Gudmundson et al. (hereinafter referred to as Gudmundson, cited in the previous office action).

60. As to claim 19, Quatrani as modified doesn't explicitly disclose providing information indicative of an iconic representation.

However, Gudmundson teaches one of the methods of the notation data structure provides information indicative of an iconic representation (e.g., see col. 3:63-67 to 4:1-12).

61. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Gudmundson into the system of Quatrani as modified, to provide information indicative of an iconic representation because one of ordinary skill in the art would have been motivated so that user can clicks on the "minimize" icon, the window will be restored.

Art Unit: 2194

62. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Quatrani and Carpenter-Smith further in view of U.S. Patent No. 6,430,538 to Bacon et al. (hereinafter referred to as Bacon, cited in the previous office action).

63. As to claim 42, Quatrani as modified doesn't explicitly disclose the associating is performed by a paradigm server.

However, Bacon teaches the associating is performed by a paradigm server (e.g., see col. 5:22-47).

64. It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Bacon into the system of Quatrani as modified, so that the associating is performed by a paradigm server because one of ordinary skill in the art would have been motivated to reduce client side workload by using paradigm server to perform the associating.

Conclusion

65. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,745,381 to Ehnebuske et al. teaches a method and apparatus for providing a methodology and notation which enables an explicit distinction between those features of an object-oriented object model that are intended to be easily changed due to changing business needs, from those features which are fundamental to the object models.

Art Unit: 2194

U.S. Patent No. 6,678,882 to Hurley et al. teaches a collaboration model for constructing evolutionary collaborative applications deployed in network environments, such as the World Wide Web, or wireless environments, which supports introduction of new object types into the deployed system

66. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Li B. Zhen whose telephone number is (571) 272-3768. The examiner can normally be reached on Mon - Fri, 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Li B. Zhen
Examiner
Art Unit 2194



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